Pascal Sturmfels

psturm@cs.washington.edu - https://psturmfels.github.io/

EMPLOYMENT

Research Intern, Salesforce Research — Summer 2020
- Supervised by Nazneen Rajani, Jesse Vig and Ali Madani
- My project was about designing a new pre-training task for deep transformers trained on unlabeled protein sequence data. We demonstrated that our pre-training task outperforms masked language modeling on a variety of protein downstream tasks. Our work is currently under review.

Research Assistant, MLD3 Lab, University of Michigan — September 2017 - May 2018
- I designed a new architecture for training convolutional neural networks trained on MRI scans of the brain, and investigated the ability of such CNNs to predict age from brain scans: an important problem in clinical diagnostics.

Software Engineering Intern, Microsoft — Summer 2017
- At Microsoft, I developed a pipeline to stress-test financial databases that help product teams make marketing decisions. I also designed a system to monitor my team's database usage and automatically scale them depending on existing demand.

Research Assistant, CAAR REU, University of Maryland — Summer 2016
- At Maryland's REU program, I developed a novel framework for a class of online machine scheduling problems that provides that lowest existing approximation ratios for such problems. I was supervised by Samir Khuller.

Research Assistant, Pachter Lab, University of California, Berkeley — May 2015 - July 2016
- As an undergraduate, I worked in the Pachter Lab, where I developed data visualization tools for the differential gene expression software sleuth. I also designed a web server to help improve the reproducibility of computational biology experiments.

EDUCATION

Ph.D. in Computer Science, Paul G. Allen School, University of Washington — (expected) 2023

B.E in Computer Science, Minor in Mathematics, University of Michigan — Fall 2017

TEACHING EXPERIENCE

Teaching Assistant, University of Washington
- CSE 546: Machine Learning — Fall 2018

Teaching Assistant, University of Michigan
- EECS 445: Machine Learning — Fall 2017
- EECS 376: Theory of Computation — Winter 2017

PUBLICATIONS

[1] **Sturmfels, Pascal**, Scott Lundberg, and Su-In Lee. "Visualizing the impact of feature attribution baselines." Distill 5, no. 1 (2020): e22.

[2] Janizek, Joseph D.*, **Pascal Sturmfels***, and Su-In Lee. "Explaining Explanations: Axiomatic Feature Interactions for Deep Networks." (under review arXiv:2002.04138)

[3] Erion, Gabriel*, Joseph D. Janizek*, **Pascal Sturmfels***, Scott Lundberg, and Su-In Lee. "Learning explainable models using attribution priors." (under review arXiv:1906.10670)

[4] Khuller, Samir, Jingling Li, **Pascal Sturmfels**, Kevin Sun, and Prayaag Venkat. "Select and permute: An improved online framework for scheduling to minimize weighted completion time." Theoretical Computer Science 795 (2019): 420-431.

[5] **Sturmfels, Pascal**, Saige Rutherford, Mike Angstadt, Mark Peterson, Chandra Sripada, and Jenna Wiens. "A Domain Guided CNN Architecture for Predicting Age from Structural Brain Images." In Machine Learning for Healthcare Conference, pp. 295-311. 2018.

[6] Pimentel, Harold, **Pascal Sturmfels**, Nicolas Bray, Páll Melsted, and Lior Pachter. "The Lair: a resource for exploratory analysis of published RNA-Seq data." BMC bioinformatics 17, no. 1 (2016): 490.